255. What is the unlabeled block (?) in this diagram? (Please refer to Diagram 3AG-4-2.2) [3AG-4-2.2]
A. A band-pass filter
B. A crystal oscillator
C. A reactance modulator
D. A rectifier modulator

SUBELEMENT 3AH - Signals and Emissions (2 Questions)

256. What is the meaning of the term modulation? [3AH-1.1]
A. The process of varying some characteristic of a carrier wave for the purpose of conveying information
B. The process of recovering audio information from a received signal
C. The process of increasing the average power of a single-sideband transmission
D. The process of suppressing the carrier in a single-sideband transmitter

257. If the modulator circuit of your FM transmitter fails, what emission type would likely result? [3AH-2-1.1]
A. An unmodulated carrier wave
B. A phase modulated carrier wave
C. An amplitude modulated carrier wave
D. A frequency modulated carrier wave

258. What emission does not have sidebands resulting from modulation? [3AH-2-1.2]
A. AM phone
B. Test
C. FM phone
D. RTTY

259. What is the FCC emission designator for a Morse code telegraphy signal produced by switching the transmitter output on and off? [3AH-2-2.1]
A. Test
B. AM phone
C. CW
D. RTTY

260. What is CW? [3AH-2-2.2]
A. Morse code telegraphy using amplitude modulation
B. Morse code telegraphy using frequency modulation
C. Morse code telegraphy using phase modulation
D. Morse code telegraphy using pulse modulation

261. What is RTTY? [3AH-2-3.1]
A. Amplitude-keyed telegraphy
B. Frequency-shift-keyed telegraphy
C. Frequency-modulated telephony
D. Phase-modulated telephony

262. What is the emission designation for telegraphy by frequency shift keying without the use of a modulating tone? [3AH-2-3.2]
A. RTTY
B. MCW
C. CW
D. Single-sideband phone

263. What emission type results when an on/off keyed audio tone is applied to the microphone input of an FM transmitter? [3AH-2-4.1]
A. RTTY
B. MCW
C. CW
D. Single-sideband phone

264. What is tone-modulated international Morse code telegraphy? [3AH-2-4.2]
A. Telephony produced by audio fed into an FM transmitter
B. Telegraphy produced by on/off keyed audio tone fed into a CW transmitter
C. Telegraphy produced by on/off keying of the carrier amplitude
D. Telegraphy produced by an on/off keyed audio tone fed into an FM transmitter

265. What is the emission designated as "MCW"? [3AH-2-5.1]
A. Frequency-modulated telegraphy using audio tones
B. Frequency-modulated telephony
C. Frequency-modulated facsimile using audio tones
D. Phase-modulated television

266. In an ITU emission designator like A1A, what does the first symbol describe? [3AH-2-5.2]
A. The nature of the signal modulating the main carrier
B. The type of the information to be transmitted
C. The speed of a radiotelegraph transmission
D. The type of modulation of the main carrier

267. What emission type results when an AF shift keyer is connected to the microphone jack of an FM phone transmitter? [3AH-2-5.3]
A. SS
B. RTTY
C. MCW
D. Image

268. In an ITU emission designator like F3B, what does the second symbol describe? [3AH-2-6.1]
A. The nature of the signal modulating the main carrier
B. The type of modulation of the main carrier
C. The type of information to be transmitted
D. The frequency modulation index of a carrier

269. How would you transmit packet using an FM 2-meter transceiver? [3AH-2-6.2]
A. Use your telegraph key to interrupt the carrier wave
B. Modulate your FM transmitter with audio tones from a terminal node controller
C. Use your mike for telephony
D. Use your touch-tone (DTMF) key pad to signal in Morse code

270. What type of emission results when speaking into the microphone of a 2-meter FM handheld transceiver? [3AH-2-7.1]
A. Amplitude modulated phone
B. Code telegraphy
C. An unmodulated carrier wave
D. Frequency modulated phone

271. What emission type do most 2-meter FM transmitters transmit? [3AH-2-7.2]
A. Interrupted pure carrier wave
B. Frequency modulated phone
C. Single-sideband voice emissions
D. Amplitude modulated carrier waves

272. What is the most important consideration when installing a 10-meter dipole inside an attic? [3AH-2-8.1]
A. It will exhibit a low angle of radiation
B. The dipole must always be run horizontally polarized
C. It will be covered by an insulation to prevent fire and high enough to prevent being accidentally touched during transmission
D. Dipoles usually don't work in attics

273. Which type of transmitter will produce a frequency modulated carrier wave? [3AH-2-8.2]
A. A CW transmitter
B. An amplitude modulated transmitter
C. A single-sideband transmitter
D. A phase modulated transmitter

274. What is the term used to describe a constant-amplitude radio-frequency signal? [3AH-3.1]
A. An RF carrier
B. An AF carrier
C. A sideband carrier
D. A subcarrier

275. What is another name for an unmodulated radio-frequency signal? [3AH-3.2]
A. An AF carrier
B. An RF carrier
C. A sideband carrier
D. A subcarrier

276. What characteristic makes FM telephony especially well-suited for local VHF/UHF radio communications? [3AH-4.1]
A. Good audio fidelity and intelligibility under weak-signal conditions
B. Better rejection of multipath distortion than the AM modes
C. Good audio fidelity and high signal-to-noise ratio above a certain signal amplitude threshold
D. Better carrier frequency stability than the AM modes

277. What emission is produced by a transmitter using a reactance modulator? [3AH-5.1]
A. CW
B. Unmodulated carrier
C. Single-sideband, suppressed-carrier phone
D. Phase modulated phone

278. What other emission does phase modulation most resemble? [3AH-5.2]
A. Amplitude modulation
B. Pulse modulation
C. Frequency modulation
D. Single-sideband modulation

279. Many communications receivers have several IF filters that can be selected by the operator. Why do these filters have different bandwidths? [3AH-6.1]
A. Because some ham bands are wider than others
B. Because different bandwidths help increase the receiver sensitivity
C. Because different bandwidths improve S-meter readings
D. Because some emission types occupy a wider frequency range than others

280. List the following signals in order of increasing bandwidth (narrowest signal first): CW, FM voice, RTTY, SSB voice. [3AH-6.2]
A. RTTY, CW, SSB voice, FM voice
B. CW, FM voice, RTTY, SSB voice
C. CW, RTTY, SSB voice, FM voice
D. CW, SSB voice, RTTY, FM voice

281. To what is the deviation of an FM transmission proportional? [3AH-7-1.1]
A. Only the frequency of the audio modulating signal
B. The frequency and the amplitude of the audio modulating signal
C. The duty cycle of the audio modulating signal
D. Only the amplitude of the audio modulating signal

282. What is the result of overdeviation in an FM transmitter? [3AH-7-2.1]
A. Increased transmitter power consumption
B. Out-of-channel emissions (splatter)
C. Increased transmitter range
D. Inadequate carrier suppression

283. What is splatter? [3AH-7-2.2]
A. Interference to adjacent signals caused by excessive transmitter keying speeds
B. Interference to adjacent signals caused by improper transmitter neutralization
C. Interference to adjacent signals caused by overmodulation of a transmitter
D. Interference to adjacent signals caused by parasitic oscillations at the antenna

SUBELEMENT 3AI - Antennas and Feed Lines (3 Questions)

284. What antenna type best strengthens signals from a particular direction while attenuating those from other directions? [3AI-1-1.1]
A. A beam antenna
B. An isotropic antenna
C. A monopole antenna
D. A vertical antenna

285. What is a directional antenna? [3AI-1-1.2]
A. An antenna whose parasitic elements are all constructed to be directors
B. An antenna that radiates in direct line-of-sight propagation, but not skywave or skip propagation
C. An antenna permanently mounted so as to radiate in only one direction
D. An antenna that radiates more strongly in some directions than others

286. What is a Yagi antenna? [3AI-1-1.3]
A. Half-wavelength elements stacked vertically and excited in phase
B. Quarter-wavelength elements arranged horizontally and excited out of phase
C. Half-wavelength linear driven element(s) with parasitically excited parallel linear elements
D. Quarter-wavelength, triangular loop elements

287. What is the general configuration of the radiating elements of a horizontally polarized Yagi? [3AI-1-1.4]
A. Two or more straight, parallel elements arranged in the same horizontal plane
B. Vertically stacked square or circular loops arranged in parallel horizontal planes
C. Two or more wire loops arranged in parallel vertical planes
D. A vertical radiator arranged in the center of an effective RF ground plane

288. What type of parasitic beam antenna uses two or more straight metal-tubing elements arranged physically parallel to each other? [3AI-1-1.5]
A. A delta loop antenna
B. A quad antenna
C. A Yagi antenna
D. A Zepp antenna

289. How many directly driven elements does a Yagi antenna have? [3AI-1-1.6]
A. None; they are all parasitic
B. One
C. Two
D. All elements are directly driven

290. What is a parasitic beam antenna? [3AI-1-1.7]
A. An antenna where the director and reflector elements receive their RF excitation by induction or radiation from the driven element
B. An antenna where wave traps are used to assure magnetic coupling among the elements
C. An antenna where all elements are driven by direct connection to the feed line
D. An antenna where the driven element receives its RF excitation by induction or radiation from the directors

291. What is a cubical quad antenna? [3AI-1-2.1]
A. Four parallel metal tubes, each approximately 1/2 electrical wavelength long
B. Two or more parallel four-sided wire loops, each approximately one electrical wavelength long
C. A vertical conductor 1/4 electrical wavelength high, fed at the bottom
D. A center-fed wire 1/2 electrical wavelength long

292. What kind of antenna array is composed of a square full-wave closed loop driven element with parallel parasitic element(s)? [3AI-1-2.2]
A. Delta loop
B. Cubical quad
C. Dual rhombic
D. Stacked Yagi

293. Approximately how long is one side of the driven element of a cubical quad antenna? [3AI-1-2.3]
A. 2 electrical wavelengths
B. 1 electrical wavelength
C. 1/2 electrical wavelength
D. 1/4 electrical wavelength

294. Approximately how long is the wire in the driven element of a cubical quad antenna? [3AI-1-2.4]
A. 1/4 electrical wavelength
B. 1/2 electrical wavelength
C. 1 electrical wavelength
D. 2 electrical wavelengths

295. What is a delta loop antenna? [3AI-1-3.1]
A. A variation of the cubical quad antenna, with triangular elements
B. A large copper ring, used in direction finding
C. An antenna system composed of three vertical antennas, arranged in a triangular shape
D. An antenna made from several coils of wire on an insulating form

296. To what does the term horizontal as applied to wave polarization refer? [3AI-2-1.1]
A. The magnetic lines of force in the radio wave are parallel to the earth's surface
B. The electric lines of force in the radio wave are parallel to the earth's surface
C. The electric lines of force in the radio wave are perpendicular to the earth's surface
D. The radio wave will leave the antenna and radiate horizontally to the destination

297. What electromagnetic wave polarization does a cubical quad antenna have when the feed point is in the center of a horizontal side? [3AI-2-1.2]
A. Circular
B. Helical
C. Horizontal
D. Vertical

298. What electromagnetic wave polarization does a cubical quad antenna have when all sides are at 45 degrees to the earth's surface and the feed point is at the bottom corner? [3AI-2-1.3]
A. Circular
B. Helical
C. Horizontal
D. Vertical

299. What is the polarization of electromagnetic waves radiated from a half-wavelength antenna perpendicular to the earth's surface? [3AI-2-2.1]
A. Circularly polarized waves
B. Horizontally polarized waves
C. Parabolically polarized waves
D. Vertically polarized waves

300. What is the electromagnetic wave polarization of most man-made electrical noise radiation in the HF-VHF spectrum? [3AI-2-2.2]
A. Horizontal
B. Left-hand circular
C. Right-hand circular
D. Vertical

301. To what does the term vertical as applied to wave polarization refer? [3AI-2-2.3]
A. The electric lines of force in the radio wave are parallel to the earth's surface
B. The magnetic lines of force in the radio wave are perpendicular to the earth's surface
C. The electric lines of force in the radio wave are perpendicular to the earth's surface
D. The radio wave will leave the antenna and radiate vertically into the ionosphere

302. What electromagnetic wave polarization does a cubical quad antenna have when the feed point is in the center of a vertical side? [3AI-2-2.4]
A. Circular
B. Helical
C. Horizontal
D. Vertical

303. What electromagnetic wave polarization does a cubical quad antenna have when all sides are at 45 degrees to the earth's surface and the feed point is at a side corner? [3AI-2-2.5]
A. Circular
B. Helical
C. Horizontal
D. Vertical

304. What is meant by the term standing wave ratio? [3AI-3-1.1]
A. The ratio of maximum to minimum inductances on a feed line
B. The ratio of maximum to minimum resistances on a feed line
C. The ratio of maximum to minimum impedances on a feed line
D. The ratio of maximum to minimum voltages on a feed line

305. What is standing wave ratio a measure of? [3AI-3-1.2]
A. The ratio of maximum to minimum voltage on a feed line
B. The ratio of maximum to minimum reactance on a feed line
C. The ratio of maximum to minimum resistance on a feed line
D. The ratio of maximum to minimum sidebands on a feed line

306. What is meant by the term forward power? [3AI-3-2.1]
A. The power traveling from the transmitter to the antenna
B. The power radiated from the front of a directional antenna
C. The power produced during the positive half of the RF cycle
D. The power used to drive a linear amplifier

307. What is meant by the term reflected power? [3AI-3-2.2]
A. The power radiated from the back of a directional antenna
B. The power returned to the transmitter from the antenna
C. The power produced during the negative half of the RF cycle
D. Power reflected to the transmitter site by buildings and trees

308. What happens to the power loss in an unbalanced feed line as the standing wave ratio increases? [3AI-3-3.1]
A. It is unpredictable
B. It becomes nonexistent
C. It decreases
D. It increases

309. What type of feed line is best suited to operating at a high standing wave ratio? [3AI-3-3.2]
A. Coaxial cable
B. Flat ribbon "twin lead"
C. Parallel open-wire line
D. Twisted pair

310. What happens to RF energy not delivered to the antenna by a lossy coaxial cable? [3AI-3-3.3]
A. It is radiated by the feed line
B. It is returned to the transmitter's chassis ground
C. Some of it is dissipated as heat in the conductors and dielectric
D. It is canceled because of the voltage ratio of forward power to reflected power in the feed line

311. What is a balanced line? [3AI-4-1.1]
A. Feed line with one conductor connected to ground
B. Feed line with both conductors connected to ground to balance out harmonics
C. Feed line with the outer conductor connected to ground at even intervals
D. Feed line with neither conductor connected to ground

312. What is an unbalanced line? [3AI-4-1.2]
A. Feed line with neither conductor connected to ground
B. Feed line with both conductors connected to ground to suppress harmonics
C. Feed line with one conductor connected to ground
D. Feed line with the outer conductor connected to ground at uneven intervals

313. What is a balanced antenna? [3AI-4-2.1]
A. A symmetrical antenna with one side of the feed point connected to ground
B. An antenna (or a driven element in an array) that is symmetrical about the feed point
C. A symmetrical antenna with both sides of the feed point connected to ground, to balance out harmonics
D. An antenna designed to be mounted in the center

314. What is an unbalanced antenna? [3AI-4-2.2]
A. An antenna (or a driven element in an array) that is not symmetrical about the feed point
B. A symmetrical antenna, having neither half connected to ground
C. An antenna (or a driven element in an array) that is symmetrical about the feed point
D. A symmetrical antenna with both halves coupled to ground at uneven intervals

315. What device can be installed on a balanced antenna so that it can be fed through a coaxial cable? [3AI-4-3.1]
A. A balun
B. A loading coil
C. A triaxial transformer
D. A wavetrap

316. What is a balun? [3AI-4-3.2]
A. A device that can be used to convert an antenna designed to be fed at the center so that it may be fed at one end
B. A device that may be installed on a balanced antenna so that it may be fed with unbalanced feed line
C. A device that can be installed on an antenna to produce horizontally polarized or vertically polarized waves
D. A device used to allow an antenna to operate on more than one band

317. List the following types of feed line in order of increasing attenuation per 100 feet of line (list the line with the lowest attenuation first): RG-8, RG-58, RG-174 and open-wire line. [3AI-5-1.1]
A. RG-174, RG-58, RG-8, open-wire line
B. RG-8, open-wire line, RG-58, RG-174
C. open-wire line, RG-8, RG-58, RG-174
D. open-wire line, RG-174, RG-58, RG-8

318. You have installed a tower 150 feet from your radio shack, and have a 6-meter Yagi antenna on top. Which of the following feed lines should you choose to feed this antenna: [3AI-5-1.2]
RG-8, RG-58, RG-59 or RG-174?
A. RG-8
B. RG-58
C. RG-59
D. RG-174

319. You have a 200-foot coil of RG-58 coaxial cable attached to your antenna, but the antenna is only 50 feet from your radio. To minimize feed-line loss, what should you do with the excess cable? [3AI-5-2.1]
A. Cut off the excess cable to an even number of wavelengths long
B. Cut off the excess cable to an odd number of wavelengths long
C. Cut off the excess cable
D. Roll the excess cable into a coil a tenth of a wavelength in diameter

320. How does feed-line length affect signal loss? [3AI-5-2.2]
A. The length has no effect on signal loss
B. As length increases, signal loss increases
C. As length decreases, signal loss increases
D. The length is inversely proportional to signal loss

321. What is the general relationship between frequencies passing through a feed line and the losses in the feed line? [3AI-5-3.1]
A. Loss is independent of frequency
B. Loss increases with increasing frequency
C. Loss decreases with increasing frequency
D. There is no predictable relationship

322. As the operating frequency decreases, what happens to conductor losses in a feed line? [3AI-5-3.2]
A. The losses decrease
B. The losses increase
C. The losses remain the same
D. The losses become infinite

323. As the operating frequency increases, what happens to conductor losses in a feed line? [3AI-5-3.3]
A. The losses decrease
B. The losses increase
C. The losses remain the same
D. The losses decrease to zero

324. You are using open-wire feed line in your amateur station. Why should you ensure that no one can come in contact with the feed line while you are transmitting? [3AI-6-1.1]
A. Because contact with the feed line while transmitting will cause a short circuit, probably damaging your transmitter
B. Because the wire is so small they may break it
C. Because contact with the feed line while transmitting will cause parasitic radiation
D. Because high RF voltages can be present on open-wire feed line

325. How can you minimize exposure to radio frequency energy from your transmitting antennas? [3AI-6-2.1]
A. Use vertical polarization
B. Use horizontal polarization
C. Mount the antennas where no one can come near them
D. Mount the antenna close to the ground

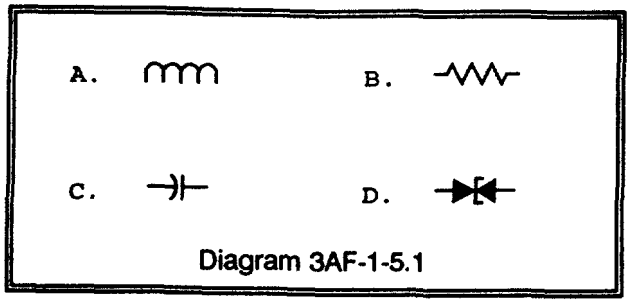


Diagram 3AF-1-5.1

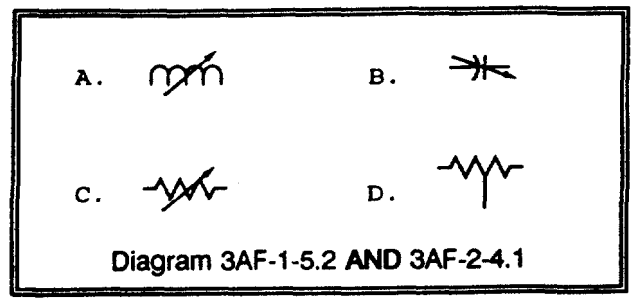


Diagram 3AF-1-5.2 **AND** 3AF-2-4.1

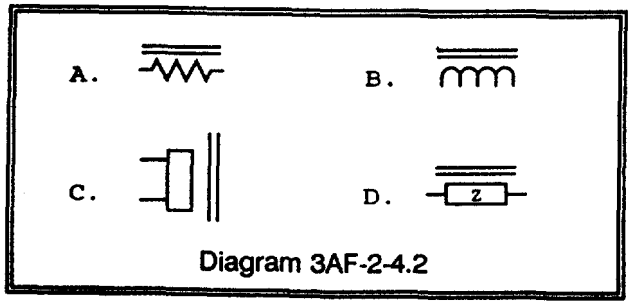


Diagram 3AF-2-4.2

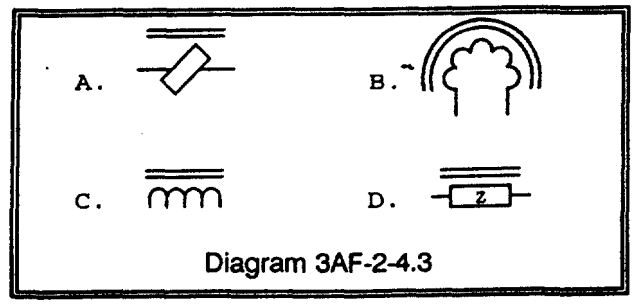


Diagram 3AF-2-4.3

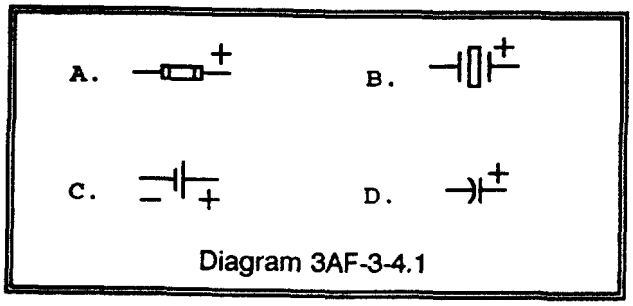


Diagram 3AF-3-4.1

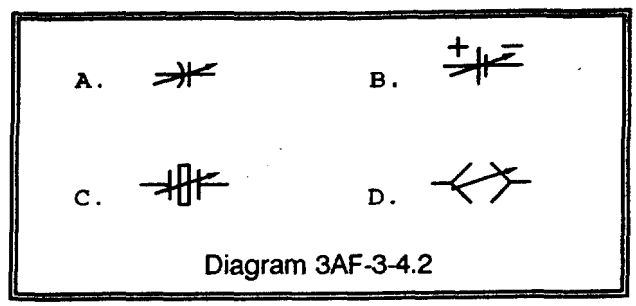


Diagram 3AF-3-4.2

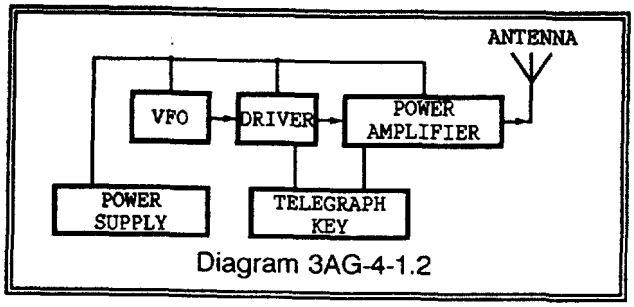


Diagram 3AG-4-1.2

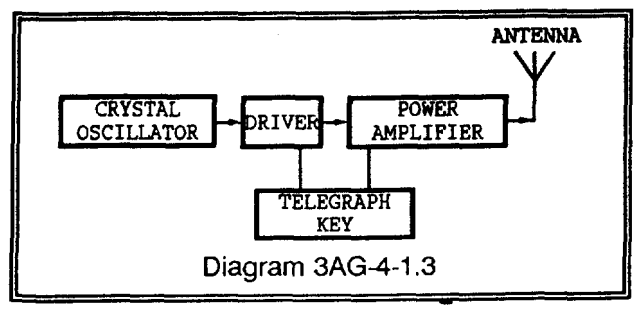
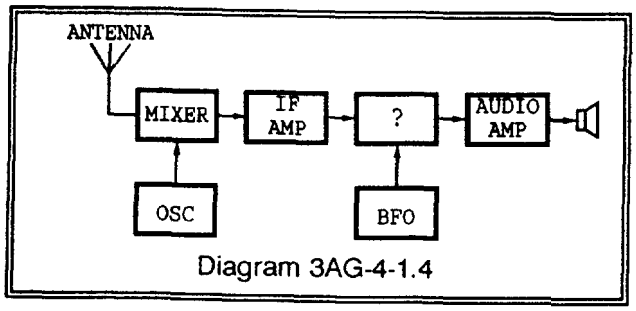


Diagram 3AG-4-1.3



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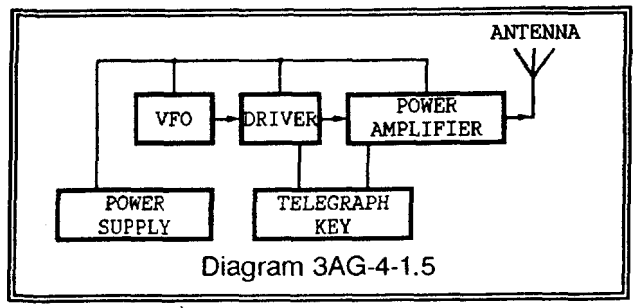

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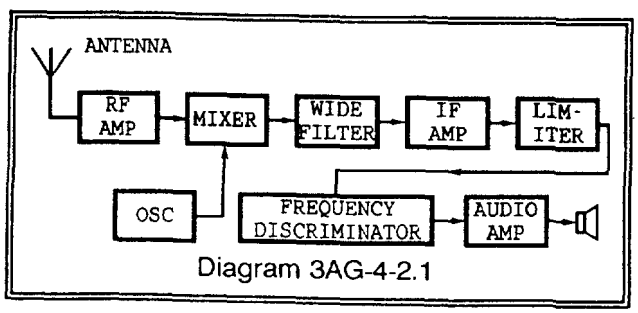

Diagram 3AG-4-2.1

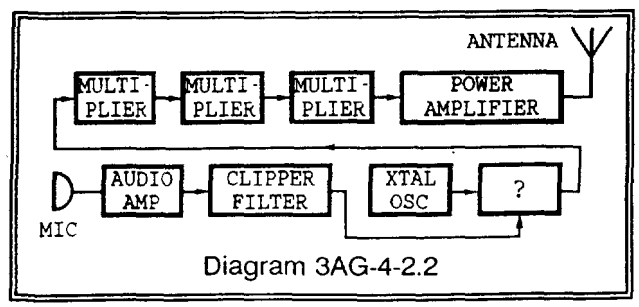

Diagram 3AG-4-2.2

1. A [3AA-1.1]
2. B [3AA-1.2]
3. C [3AA-2.2]
4. B [3AA-2.3]
5. A [3AA-2.4]
6. B [3AA-2.5]
7. A [3AA-3.1]
8. A [3AA-3.2]
9. A [3AA-3.3]
10. B [3AA-4.1]
11. A [3AA-4.2]
12. A [3AA-4.3]
13. D [3AA-5.1]
14. C [3AA-5.2]
15. C [3AA-6-1.1]
16. D [3AA-6-1.2]
17. C [3AA-6-2.1]
18. D [3AA-6-3.1]
19. B [3AA-6-4.1]
20. C [3AA-7-1.1]
21. B [3AA-7-1.2]
22. D [3AA-7-1.3]
23. C [3AA-7-2.1]
24. C [3AA-7-2.2]
25. A [3AA-7-3.1]
26. D [3AA-7-3.2]
27. D [3AA-7-3.3]
28. B [3AA-8-1.1]
29. B [3AA-8-2.1]
30. C [3AA-8-3.1]
31. A [3AA-9-1.1]
32. A [3AA-9-2.1]
33. A [3AA-10.1]
34. C [3AA-10.2]
35. D [3AA-10.3]
36. B [3AA-10.4]
37. A [3AA-11-1.1]
38. B [3AA-11-1.2]
39. A [3AA-11-1.3]
40. D [3AA-11-2.1]
41. A [3AA-11-2.2]
42. C [3AA-11-2.3]
43. A [3AA-11-2.4]
44. A [3AA-12.1]
45. C [3AA-12.2]
46. B [3AA-12.3]
47. D [3AA-12.4]
48. C [3AA-12.5]
49. B [3AA-13.1]
50. D [3AA-13.2]
51. D [3AA-13.3]
52. C [3AA-13.4]
53. D [3AA-14.1]
54. C [3AA-14.2]
55. D [3AA-14.3]
56. A [3AA-15.1]
57. C [3AA-15.2]
58. D [3AA-15.3]
59. B [3AA-15.4]
60. B [3AA-16.1]
61. D [3AA-16.2]
62. C [3AA-16.3]
63. A [3AA-17.1]
64. A [3AB-1.1]
65. C [3AB-1.2]
66. D [3AB-1.3]
67. B [3AB-2-1.1]
68. C [3AB-2-1.2]
69. A [3AB-2-1.3]
70. D [3AB-2-1.4]
71. B [3AB-2-1.5]
72. B [3AB-2-1.6]
73. D [3AB-2-1.7]
74. C [3AB-2-2.1]
75. C [3AB-2-2.2]
76. D [3AB-2-3.1]
77. B [3AB-2-3.2]
78. A [3AB-2-3.3]
79. C [3AB-2-3.4]
80. D [3AB-2-4.1]
81. A [3AB-3.1]
82. B [3AB-3.2]
83. C [3AB-3.3]
84. A [3AB-4.1]
85. D [3AB-4.2]
86. C [3AB-5-1.1]
87. B [3AB-5-1.2]
88. D [3AB-5-2.1]
89. A [3AB-6-1.1]
90. B [3AB-6-1.2]
91. D [3AB-6-2.1]
92. B [3AB-6-3.1]
93. C [3AB-6-3.2]
94. A [3AC-1-1.1]
95. D [3AC-1-1.2]
96. C [3AC-1-1.3]
97. A [3AC-1-2.1]
98. B [3AC-1-2.2]
99. B [3AC-1-3.1]
100. D [3AC-1-4.1]
101. B [3AC-1-4.2]
102. C [3AC-1-4.3]
103. D [3AC-2.1]
104. B [3AC-2.2]
105. A [3AC-2.3]
106. B [3AC-2.4]
107. D [3AC-3.1]
108. C [3AC-3.2]
109. A [3AC-3.3]
110. B [3AC-3.4]
111. D [3AC-4.1]
112. C [3AC-4.2]
113. A [3AC-4.3]
114. C [3AC-5.1]
115. C [3AC-5.2]
116. A [3AC-6.1]
117. B [3AC-6.2]
118. C [3AC-7.1]
119. A [3AC-7.2]
120. D [3AC-7.3]
121. A [3AC-7.4]
122. B [3AC-7.5]
123. D [3AC-7.6]
124. C [3AD-1-1.1]
125. D [3AD-1-1.2]
126. B [3AD-1-1.3]
127. B [3AD-1-1.4]
128. A [3AD-1-2.1]
129. A [3AD-1-2.2]
130. A [3AD-1-2.3]
131. C [3AD-1-3.1]
132. B [3AD-2-1.1]
133. C [3AD-2-2.1]
134. A [3AD-3-1.1]
135. D [3AD-3-2.1]
136. D [3AD-4.1]
137. A [3AD-5-1.1]
138. C [3AD-5-1.2]
139. B [3AD-5-1.3]
140. A [3AD-5-1.4]
141. B [3AD-5-2.1]
142. C [3AD-5-2.2]
143. A [3AD-6.1]
144. D [3AD-6.2]
145. A [3AD-6.3]
146. C [3AD-7.1]
147. B [3AD-7.2]
148. D [3AD-8-1.1]
149. D [3AD-8-1.2]
150. A [3AD-8-2.1]
151. C [3AD-8-2.2]
152. D [3AD-9.1]
153. B [3AD-9.2]
154. C [3AD-9-3]
155. B [3AD-9.4]
156. A [3AD-9.5]
157. A [3AD-9.6]
158. C [3AD-10.1]
159. A [3AD-10.2]
160. B [3AD-11-1.1]
161. A [3AD-11-1.2]
162. D [3AD-11-2.1]
163. B [3AD-11-2.2]
164. B [3AD-11-2.3]
165. D [3AD-11-2.4]
166. B [3AD-11-2.5]
167. C [3AD-11-3.1]
168. D [3AE-1-1.1]
169. A [3AE-1-2.1]
170. D [3AE-1-2.2]
171. B [3AE-1-3.1]
172. D [3AE-1-3.2]
173. B [3AE-1-4.1]
174. C [3AE-1-4.2]
175. D [3AE-2.1]
176. A [3AE-2.2]
177. C [3AE-2.3]
178. D [3AE-2.4]
179. B [3AE-2.5]
180. D [3AE-2.6]
181. D [3AE-2.7]
182. A [3AE-2.8]
183. A [3AE-2.9]
184. C [3AE-3-1.1]
185. C [3AE-3-2.1]
186. C [3AE-3-2.2]

187. B [3AE-3-2.3]
188. C [3AE-3-2.4]
189. B [3AE-3-3.1]
190. C [3AE-3-3.2]
191. A [3AE-3-4.1]
192. B [3AE-3-4.2]
193. A [3AE-4-1.1]
194. A [3AE-4-2.1]
195. B [3AE-4-2.2]
196. A [3AE-4-2.3]
197. B [3AE-4-2.4]
198. C [3AE-4-3.1]
199. B [3AE-4-3.2]
200. A [3AE-4-4.1]
201. A [3AE-4-4.2]
202. B [3AF-1-1.1]
203. D [3AF-1-2.1]
204. C [3AF-1-2.2]
205. A [3AF-1-3.1]
206. B [3AF-1-3.2]
207. B [3AF-1-3.3]
208. C [3AF-1-3.4]
209. A [3AF-1-4.1]
210. C [3AF-1-4.2]
211. B [3AF-1-5.1]
212. C [3AF-1-5.2]
213. D [3AF-2-1.1]
214. A [3AF-2-1.2]
215. D [3AF-2-1.3]
216. C [3AF-2-1.4]
217. D [3AF-2-2.1]
218. C [3AF-2-2.2]
219. D [3AF-2-3.1]
220. B [3AF-2-3.2]
221. A [3AF-2-3.3]
222. B [3AF-2-3.4]
223. A [3AF-2-4.1]
224. B [3AF-2-4.2]
225. C [3AF-2-4.3]
226. D [3AF-3-1.1]
227. A [3AF-3-1.2]
228. C [3AF-3-1.3]
229. C [3AF-3-1.4]
230. B [3AF-3-2.1]
231. D [3AF-3-2.2]
232. A [3AF-3-2.3]
233. B [3AF-3-2.4]
234. A [3AF-3-3.1]
235. B [3AF-3-3.2]
236. D [3AF-3-3.3]
237. D [3AF-3-4.1]
238. A [3AF-3-4.2]
239. A [3AG-1-1.1]
240. D [3AG-1-1.2]
241. C [3AG-1-2.1]
242. B [3AG-1-2.2]
243. B [3AG-2-1.1]
244. A [3AG-2-2.1]
245. B [3AG-2-2.2]
246. A [3AG-3-1.1]
247. D [3AG-3-1.2]
248. A [3AG-3-2.1]
249. C [3AG-4-1.1]
250. D [3AG-4-1.2]
251. B [3AG-4-1.3]
252. B [3AG-4-1.4]
253. D [3AG-4-1.5]
254. D [3AG-4-2.1]
255. C [3AG-4-2.2]
256. A [3AH-1.1]
257. A [3AH-2-1.1]
258. B [3AH-2-1.2]
259. C [3AH-2-2.1]
260. A [3AH-2-2.2]
261. B [3AH-2-3.1]
262. A [3AH-2-3.2]
263. B [3AH-2-4.1]
264. D [3AH-2-4.2]
265. A [3AH-2-5.1]
266. D [3AH-2-5.2]
267. C [3AH-2-5.3]
268. A [3AH-2-6.1]
269. B [3AH-2-6.2]
270. D [3AH-2-7.1]
271. B [3AH-2-7.2]
272. C [3AH-2-8.1]
273. D [3AH-2-8.2]
274. A [3AH-3.1]
275. B [3AH-3.2]
276. C [3AH-4.1]
277. D [3AH-5.1]
278. C [3AH-5.2]
279. D [3AH-6.1]
280. C [3AH-6.2]
281. D [3AH-7-1.1]
282. B [3AH-7-2.1]
283. C [3AH-7-2.2]
284. A [3AI-1-1.1]
285. D [3AI-1-1.2]
286. C [3AI-1-1.3]
287. A [3AI-1-1.4]
288. C [3AI-1-1.5]
289. B [3AI-1-1.6]
290. A [3AI-1-1.7]
291. B [3AI-1-2.1]
292. B [3AI-1-2.2]
293. D [3AI-1-2.3]
294. C [3AI-1-2.4]
295. A [3AI-1-3.1]
296. B [3AI-2-1.1]
297. C [3AI-2-1.2]
298. C [3AI-2-1.3]
299. D [3AI-2-2.1]
300. D [3AI-2-2.2]
301. C [3AI-2-2.3]
302. D [3AI-2-2.4]
303. D [3AI-2-2.5]
304. D [3AI-3-1.1]
305. A [3AI-3-1.2]
306. A [3AI-3-2.1]
307. B [3AI-3-2.2]
308. D [3AI-3-3.1]
309. C [3AI-3-3.2]
310. C [3AI-3-3.3]
311. D [3AI-4-1.1]
312. C [3AI-4-1.2]
313. B [3AI-4-2.1]
314. A [3AI-4-2.2]
315. A [3AI-4-3.1]
316. B [3AI-4-3.2]
317. C [3AI-5-1.1]
318. A [3AI-5-1.2]
319. C [3AI-5-2.1]
320. B [3AI-5-2.2]
321. B [3AI-5-3.1]
322. A [3AI-5-3.2]
323. B [3AI-5-3.3]
324. D [3AI-6-1.1]
325. C [3AI-6-2.1]